

CONTINUOUS PROCESS FOR MAKING POLYMERS IN CARBON DIOXIDE

Abstract of the Disclosure

5

10 A method for carrying out the continuous polymerization of a monomer in a carbon dioxide reaction medium comprises the steps of: (a) providing an apparatus including a continuous reaction vessel and a separator; (b) carrying out a polymerization reaction in the reaction vessel by combining a monomer and a carbon dioxide reaction medium therein (and preferably by also combining an initiator therein), wherein the reaction medium is a liquid or supercritical fluid, and wherein the reaction produces a solid polymer product in the reaction vessel; then (c) withdrawing a continuous effluent stream from the reaction vessel during the polymerization reaction, wherein the effluent stream is maintained as a liquid or supercritical fluid; then (d) passing the continuous effluent stream through the separator and separating the solid polymer therefrom while maintaining at least a portion of the effluent stream as a liquid or supercritical fluid; and then (e) returning at least a portion of the continuous effluent stream to the reaction vessel while maintaining the effluent stream as a liquid or supercritical fluid. The need for significant recompression of the continuous effluent stream prior to return to the reaction vessel is thereby minimized. Apparatus for carrying out such methods is also disclosed.

20

006077 9026060